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International Evidence on the Value of Product and Geographic Diversity

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Corporate diversification destroys value due to both agency and influence costs. Consistent with this finding, insider ownership is associated with less corporate diversification.

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Summary findings

Laeven examines the effect of product and geographic diversification on firm value for a sample of 1,914 corporations in 18 countries. His results indicate that both product and geographic diversification destroy value at high levels of diversification, suggesting that agency and influence costs arising from the increased complexity outweigh the benefits of diversification at high levels. Geographic diversification is valuable at low levels, however.

The author finds that insider ownership is associated with less diversification, across both product and geographic segments, suggesting that insiders view corporate diversification as value destroying.

This paper—a product of the Financial Sector Strategy and Policy Department—is part of a larger effort in the department to study corporate financing problems around the world. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room MC9-624, telephone 202-473-3722, fax 202-522-2031, email address hvo1@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at llaeven@worldbank.org. December 2001. (34 pages)

International Evidence on the Value of Product and Geographic Diversity

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1. Introduction

Research on the value of corporate diversification has focused on diversification across industries. However, in addition to diversifying across lines of business, firms can also diversify their activities across national boundaries. In this paper we consider both forms of diversification simultaneously for a large number of firms in different countries. If investment opportunities differ across countries, then it should be true that excess values of conglomerates can be partly explained by geographic diversification, in addition to industrial diversification. Differentiating across industries only could therefore produce biased results of the effect of corporate diversification on firm value. Previous work has shown that investment opportunities indeed tend to differ across countries (see the evidence in Fauver et al. (1998), Lins and Servaes (1999), and Claessens et al. (1999b)). Therefore, it is necessary to include the geographic component into research on the value of corporate diversification.

Using data on 1,914 corporations from 18 countries we find that both geographic and product diversification destroy value at high levels of diversification, suggesting that agency and influence costs arising from increased complexity outweigh the benefits of diversification at high degrees of diversification. Geographic diversification is found to be valuable, however, at low levels of diversification. We also find that insider ownership is related to less diversification, suggesting that insiders view corporate diversification as value destroying.

Our work is closely related to Bodnar et al. (1997) who examine the simultaneous effect of geographic and industrial diversification on firm value for a sample of US corporations. They find that product diversification destroys firm value and that geographic diversification enhanced firm value. We extend the study in Bodnar et al. (1997) by using a sample that includes firms from a large number of countries and by considering the effects of insider ownership on excess firm value in an international context. We therefore contribute to the literature by providing international evidence on the simultaneous effect of geographic and industrial diversification on firm value.

The paper continues as follows. Section 2 reviews the literature on the value implications of corporate diversification. Section 3 discusses the data and valuation

methodology used to test simultaneously for the value impact of both industrial and geographic diversification. Section 4 presents the empirical results on the valuation effects of geographic and industrial diversification. Section 5 presents the empirical results on the investment effects of geographic and industrial diversification. Section 6 concludes.

2. Review of the Literature

Economic theory suggests both positive and negative impacts of corporate diversification on firm value. Potential costs associated with corporate diversification stem from the increased organizational complexity and include influence costs and agency costs.[1] The more complex the corporation, the more difficult it is for shareholders to monitor management's decision and the more difficult it is for an organization to set the right incentives internally. Meyer, Milgrom, and Roberts (1992) show that managers of divisions that have a bleak future have an incentive to attempt to influence the top management of the firm to channel resources in their direction. The organizational complexity could also result in agency costs with managers deriving private benefits from diversification that exceed their private costs. Jensen (1986), Stulz (1990), and Denis et al. (1997) argue that managers diversify to increase firm size and to benefit from the power and prestige of managing a larger firm. Diversification may also benefit managers because managerial compensation is related to firm size, as suggested by Jensen and Murphy (1990). Shleifer and Vishny (1989) demonstrate that managers can use diversification to entrench themselves and extract rents from shareholders by making manager-specific investments. Amihud and Lev (1981) suggest that managers may diversify to reduce the risk of their undiversifiable human capital. The organizational complexity may also increase the internal agency conflicts and lead to power struggles between divisions, as suggested by Rajan, Servaes, and Zingales (2000).

Potential benefits associated with corporate diversification include the improved ability to take advantage of the tax benefits of debt financing (Lewellen, 1971),

[1] The conjecture that corporate diversification may destroy firm value was first put forward by Schmalensee (1985).

economies of scope (Teece, 1980), and the creation of an internal capital market (Stulz, 1990, Gertner, Scharfstein and Stein (1994), and Stein, 1997). However, internal capital markets do not always work efficiently. Scharfstein and Stein (2000) show how rent-seeking behavior on the part of division managers can subvert the workings of an internal capital market.

The above costs and benefits of corporate diversification relate to both product and geographic diversification. In addition to the above theories, economic theory suggests a number of benefits of corporate diversification that are specific to geographic diversification (Morck and Yeung, 1991). First, geographic diversification may raise firm value because it provides access to relatively low-cost inputs from abroad. Second, geographic diversification may raise firm value because it allows the firm more possibilities for tax avoidance.

Numerous studies have documented the stylized fact that product diversification destroys firm value. Such studies include Wernerfelt and Montgomery (1988), Lang and Stulz (1994), Berger and Ofek (1995), Comment and Jarrell (1995), and Servaes (1996).

The effect of geographic diversification on firm value found in the literature has been more ambiguous. Errunza and Senbet (1981, 1984) examine an excess-value measure for a sample of multinational firms and find that the value measure is increasing with the degree of international activity. Morck and Yeung (1991) find that the positive impact of research and development and advertising spending on a firm's q is enhanced by multinationality, but that multinationality itself has no significant impact on excess firm value. Click and Harrison (2000) find for a sample of US firms that corporate multinationality destroys value. Bodnar et al. (1997) examine the simultaneous effect of geographic and industrial diversification on firm value for a sample of US corporations. They find that geographic diversification enhances firm value by around 2% and that product diversification destroys firm value by around 5%.

Related empirical work has asked specifically whether diversified firms allocate their capital expenditures efficiently across divisions. The general answer has been no and has been supported by two strands of evidence. First, studies such as Lamont (1997), Shin and Stulz (1998), and Rajan, Servaes, and Zingales (2000) all find that internal capital markets in conglomerates transfer funds across divisions in a sub-optimal manner.

Second, studies such as Berger and Ofek (1995), and Scharfstein (1997) provide evidence suggesting that the divisions of conglomerates do not respond adequately to investment opportunities, in comparison to single-segment firms. On the other hand, there also exist empirical results in favor of the efficient internal market hypothesis, such as those in Khanna and Tice (2001), although their results may be specific to the US discount department store industry, the industry of their attention.

Recent work suggests that the degree of corporate diversification depends on the structure of corporate ownership. Denis et al. (1997) find that the level of product diversification is negatively related to managerial equity ownership and to the equity ownership of outside blockholders, and Click and Harrison (2000) find that the level of geographic diversification is negatively related to insider ownership. The literature is, however, not conclusive about the effect of insider ownership on the value of corporate diversification. Denis et al. (1997) find little evidence that the value loss from diversification is related to either managerial or outside blockholder ownership. Anderson et al. (2000) also find that differences in the degree of managerial ownership do not explain differences in the magnitude of the diversification discount. On the other hand, Scharfstein (1997) finds that capital misallocation is more pronounced in conglomerates where management has small ownership stakes, suggesting that insider ownership creates firm value.

The diversification discount seems to be country-specific. Lins and Servaes (1999) examine the valuation effect of corporate diversification for firms in Germany, Japan and the United Kingdom. They find no significant diversification discount in Germany, but a significant diversification discount in Japan and the UK, consistent with the findings of related work for the US. Concentrated ownership in the hands of insiders enhances the valuation effect of diversification in Germany, but not in Japan or the UK. These findings suggest that international differences in corporate governance affect the impact of diversification on shareholder wealth. Claessens et al. (1999b) show that firms across countries also differ in whether they diversify vertically or horizontally. In general, they find that vertical diversification destroys value and complementary diversification enhances value.

Institutional factors can explain differences across countries in the diversification discount. Fauver et al. (1998) show that in countries with poorly developed capital markets, the conglomerate discount is not very large. Lins and Servaes (2000) find for a sample of East Asian countries that diversified firms trade at a larger discount in countries with poorly-developed external capital markets, suggesting inefficient internal capital markets in economies with imperfect external capital markets. Claessens et al. (1999a) find that the role of internal capital markets and its relationship to the value of diversification depends on the turbulence in the external capital market.

Some recent papers have raised some critical points with respect to the empirical literature on the value of corporate diversification. First, if investment opportunities differ between firms in the same industry, firms may endogenously choose to diversify, in which case exogenous variation in diversification is necessary in order to draw inferences about the causal effect of corporate diversification on firm value (Maksimovic and Phillips, 2001). Lamont and Polk (2001a) find that exogenous changes in diversity, due to changes in industry investment, are negatively related to firm value, consistent with the diversification discount. Second, Lamont and Polk (2001b) show that a substantial fraction of the cross-sectional variance of diversification discounts is due to variation in expected returns rather than variation in expected cash flows.

3. Description of the Data and Valuation Methodology

We collect firm data from the Worldscope database. Worldscope provides financial and ownership data for a large number of companies from 47 countries. Table 1 lists the number of companies at the start of the sample selection procedure and the number of firms that drop out after applying several selection criteria to the data. We start with the entire universe of firms on Worldscope. Since we need market values for the companies in our study, we exclude private companies from the analysis. We also exclude all corporations whose main line of business is in the financial services industry (SIC 6000-6999). Financial firms are eliminated because our main valuation measure, the market-to-assets ratio, is not meaningful for financial firms. Next, we focus on the year 1999 because diversification measures and ownership data are available only for the last

accounting year, i.e., 1999 at the time of data collection. Because of possible business cycle patterns over the year we only focus on the second part of the year. More precisely, we exclude firms that do not report fiscal year-end data during the period July 1, 1999 until Jan 31, 2000. To avoid distorted valuation multiples for firms with sales or assets near zero, we require firms to have sales and assets of at least $20 million. As measure of geographic diversification we use the ratio of foreign sales to total sales. We therefore eliminate companies that lack foreign sales data. We further eliminate a small number of firms by restricting the ratio of foreign sales to total sales to take values not to exceed 100%. Finally, we delete all firms in countries with less than 20 firm observations. We need a reasonable number of observations for each country to correct for possible country-specific effects. These procedures result in a sample of 1,914 firms across 18 countries. Table 2 presents the distribution of firm observations across countries. Two-thirds of the observations are from countries other than the UK or the US, but for some countries we only have a small number of firms.

We measure geographic diversification by the ratio of foreign sales to total sales. We classify firms as multinationals if the ratio of foreign sales to total sales exceeds 10%. Industrial diversification is measured by the number of product segments[2] in which a firm operates where a product segment is defined as a two-digit SIC code industry. We define industrially diversified firms as firms that operate in two or more two-digit SIC code industries. Combining our measures of geographic and industrial diversification we can distinguish four groups of firm: single-segment domestic firms, single-segment multinational firms, industrially-diversified domestic firms and industrially-diversified multinational firms. We also collect data on insider ownership of firms. We classify an ownership position as insider ownership whenever the ownership position overlaps with the list of officers and directors provided by Worldscope. The ownership positions are as

[2] Lang and Stulz (1994) note that the number of different main SIC codes reported by the firm as a measure of product diversification turns out to be extremely similar to the number of product segments reported by the firm. This is true for our sample as well. Lang and Stulz (1994) also show that the number of segments as a measure of product diversification produces similar results as two other diversification measures used by Comment and Jarrell (1993), namely, the Herfindahl index computed from the sales of a firm by segment, and the Herfindahl index computed from the assets of a firm by segment. This suggests that our measure of product diversification, the number of different main SIC codes, is as good a proxy for product diversification as any of the other measures suggested by Comment and Jarrell (1993).

of end 1999. We classify insider firms as firms with more than 5% of shares held by insiders.

To investigate whether diversified firms are valued differently from single-segment firms, we employ a simplified version of the valuation methodology proposed by Berger and Ofek (1995). They develop a method based on the ratio of total firm value to total assets. Each segment of a diversified firm is assigned the valuation ratio of the median of the single-segment firms that operate in the same industry. The imputed values of all the segments of a company are then summed to compute the imputed value of that company. The natural logarithm of the ratio of the actual to imputed market value is called the excess value of the firms, and it is used to determine whether diversified firms are trading at a discount or a premium. Berger and Ofek (1995) do not consider geographic diversification but in theory it would be easy to employ their methodology both across product segments and geographic area segments. However, segment data is only available either along product line or geographic area, but not across the matrix of both products and geographic areas. In other words, data on sales in different geographic areas is not available for each product group but only for the total sales of a firm, neither is the product segment data available for each geographic area. The approach we follow is similar in spirit though. We measure the excess value as the natural logarithm ratio of the actual Tobin's q to the imputed Tobin's q of the primary industrial segment of the firm on a 2-digit SIC level, where the imputed Tobin's q of the primary industrial segment is calculated as the Tobin's q of the median single activity firm with zero foreign sales in that particular 2-digit SIC level industry.

Consistent with the evidence in Rajan, Servaes and Zingales (2000) that it is diversity in investment opportunities between segments within firms that leads to distorted investment allocations and hence value differences between diversified firms, we use excess values on a two-digit SIC level rather than on a 4-digit SIC level, assuming that diversity among four-digit SIC level industries within the same two-digit SIC level

industry is low.[3] Also, we do not have enough firm observations to analyze firm excess values on a four-digit SIC level with enough statistical precision.

Due to data limitations we do not calculate the excess value based on imputed value of single-segment firms in a particular industry for each country, but we average across countries. We thus assume that excess value differs across industry and country but that the country effect on excess value does not differ across industries. We include country dummies to control for cross-country differences in excess values. Our approach is similar to the one followed by La Porta et al. (2001) who measure industry-adjusted Tobin's q as the difference between Tobin's q and the world median Tobin's q for the firm's industry; hence, they too make the industry adjustment relative to the world-wide rather than country-wide average for a particular industry.

We construct our measure of excess firm value on the basis of the firm's primary product segment. In principle, one would want to construct excess value using data on each product and geographic segment. It is, however, difficult to construct a more detailed measure of excess value given the availability of the data. As mentioned before, segment data are unavailable along both product and geographic area and the segment data in Worldscope are quite sparse. Product segment data are not available for many companies and do not always match the SIC industry codes. Moreover, geographic segment data do not follow the same definition across firms. For some firms this type of information is quite detailed with a breakdown by country; for other firms geographic segment data only distinguish between continents.

Table III contains descriptive statistics of the firms in our sample. We have collected data on 1,914 firms from 18 countries. Most firms in the sample are diversified either along products or geographic segments. Half of the firms is diversified along both forms. Only 12% of the firms in the sample lack both multinational and product diversity. Insider ownership is present in 17% of the firms, but varies from 13% in industrially-diversified, multinational firms to 26% in single-segment, domestic firms, suggesting that insider firms are less diversified. We also find that the degree of diversification along

[3] Indirectly, we thus distinguish between related and unrelated product diversification, acknowledging that unrelated diversification to the firm's core business may be valued differently than related diversification (related diversification being diversification within the same two-digit industry as the firm's core business).

either product or geographic segments is similar for firms that decide to diversify along both forms and for firms that diversify along one form of diversification only. The median multinational firm has a ratio of foreign sales to total sales of 50%, both multinationals that do not diversify along product segments and multinationals that do. Similarly, the median industrially-diversified firm is diversified along three product segments, independent of whether it is also diversified geographically or not. This suggests that product diversification and geographic diversification are uncorrelated. Furthermore, we find that the multinational firms in our sample tend to be larger firms, both in terms of assets and market capitalization. Our measure of firm value, Tobin's q, indicates that single-segment, multinational firms tend to be most valuable, while industrially-diversified, domestic firms to be the least valuable. This is confirmed by our measure of excess firm value. Other things equal, multinational diversity increases excess firm value and product diversity destroys excess firm value. For comparison purposes, we also present median P/E ratios for the four different groups. Although P/E ratio may suffer from a number of measurement problems, they show a similar pattern. Geographic diversification increases value, while product diversification destroys value. Also, we find that undiversified firms tend to be more leveraged, more profitable (as measured by cash flow), and invest more. However, our industry-adjusted measure of excess investment indicates that the more diversified firms tend to invest more. Our measure of excess investment is consistent with our definition of excess value and is defined as the natural logarithm of the ratio of a firm's actual capital expenditures-to-assets ratio to its imputed capital expenditures-to-assets ratio. The imputed capital expenditures-to-assets ratio is the capital expenditures-to-assets value of the median single activity firm with no foreign sales that operates in the same primary industrial segment as measured on a 2-digit level and has more than $20 million in assets and sales. Overall, we find that firms with large industrial diversity tend to invest more and be valued less, while firms with multinational diversity tend to invest more and be valued more, suggesting that large industrial diversity tends to distort incentives and lead to an inefficient allocation of resources. These findings do however not control for firm-specifics and should therefore be interpreted with caution. In the next section, we employ a regression analysis to isolate the effect of firm diversity on firm value.

In Tables 4-6, we present the correlations between some of the key variables of our analysis. Again, we find that industrially-diversified firms tend to be valued less, both if we use the number of product segments or a dummy variable that takes value one if the number of product segments equals or exceeds two as a measure of product diversification. We also find that our measures of product diversification and geographic diversification are not highly correlated, although the correlation is positive and significantly different from zero, consistent with the remarks made earlier. Finally, we find that insider ownership tends to be lower in diversified firms. Put differently, firms where insiders own shares tend to diversify less, both along products and geographic areas.

4. Valuation Results

In this section we estimate the effects of product and geographic diversity on firm value when controlling for a number of firm-specifics. In addition to making industry adjustments and to adding country dummies, it is important to control for a number of other factors related to a firm's market-to-assets ratio (see Lang and Stulz (1994), Berger and Ofek (1995), among others). Other potential determinants of the market-to-assets ratio are firm size, profitability, growth opportunities and ownership. We control for several of these characteristics in a regression framework that closely follows Lins and Servaes (1999). In particular, we estimate the following cross-sectional regression model:

$$\begin{aligned}\text{Excess value} = a &+ b_1\,(\text{Industrial diversification measure}) \\ &+ b_2\,(\text{Geographic diversification measure}) \\ &+ b_3\,(\text{Log assets}) + b_4\,(\text{Cash flow/Sales}) \\ &+ b_5\,(\text{Capital expenditures/Sales}) \\ &+ b_6\,(\text{Insider ownership}) + e.\end{aligned} \qquad (1)$$

Excess value has been defined previously as the natural logarithm ratio of the actual Tobin's q to the imputed Tobin's q of the primary industrial segment of the firm on a 2-digit SIC level. The ratio of cash flow to sales is employed as a proxy for

profitability, and the ratio of capital expenditures to sales as a proxy for growth opportunities. We are particularly interested in the value and sign of the coefficients b_1 and b_2.

Table 7 reports the results of estimating the regression model in (1). We estimate the model both with only one of the two diversification measures and with the two measures simultaneously to assess the sensitivity of the results. We find that both industrial and geographical diversification reduce firm value. Given that we low correlation between our measures of industrial and geographical diversification reported earlier, it is no surprise to also find that adding both measures of diversification to the regression model simultaneously does not affect their individual coefficients compared to estimation with one diversification measure only. We also find that larger firms (in terms of assets) tend to be valued more.

We also consider whether any of the value impacts of diversification from Table 7 differ conditionally on the form of diversification. In particular, we are interested in whether geographic diversification has a differential impact depending on whether the firm is industrially diversified or not and whether industrial diversification has a differential impact depending on whether the firm is geographically diversified or not. A similar type of test has been employed by Bodnar et al. (1997).

Table 8 presents the results of estimating the value impact of diversification conditional upon the type of firm. We distinguish between single-activity firms versus multi-activity firms, and between domestic and multinational firms. The first two columns of Table 8 contain the results for the tests of the value of geographic diversification conditional on industrial diversification. When comparing the results of regressions one and two we find that the regression coefficients of the geographic diversification measures are significantly different between the two regressions. While geographic diversification is found to destroy value for multi-activity firms, its effect on value for single-activity firms is found to be not significantly different from zero. This suggests that the value impact of geographic diversification is dependent on the extent of industrial diversification. We also find that the industrial diversification intensity estimate for the multi-activity firms only regression is negative and significant, suggesting that

conditional on being multi-activity, industrial diversification has a negative impact on firm value.

Columns three and four of Table 8 contain the results for the tests of the value of industrial diversification conditional on geographic diversification. In the regression in column three, the regression coefficient of the industrial diversification measure is negative and significantly different from zero. The estimate is not very different from the regression coefficient of the industrial diversification measure in column four, which is also negative and significantly different from zero. This suggests that the value impact of geographic diversification is relatively constant and independent of the extent of geographic diversification. We also find that the geographic diversification impact estimate for the multinational firms only regression in column four is negative and significantly different from zero, suggesting that conditional on being a multinational, the extent of geographic diversification reduces firm value.

Next, we investigate whether insider ownership affects the costs of diversification. This analysis is similar in spirit to that of Denis, Denis, and Sarin (1997) and Lins and Servaes (1999). Both studies find that diversified firms have lower insider ownership, and that there is a weak link between insider ownership and firm value. Denis et al. (1997) focus on US firms and find a weak link between insider ownership and the diversification discount. Lins and Servaes (1999) find that concentrated ownership in the hands of insiders enhances the valuation effect of diversification in Germany, but not in Japan or the UK. To determine whether excess firm value is related to insider ownership, we estimate a regression model similar to the one in (1), but we now include a dummy variable that indicates whether the insiders (officers and directors) of the firm own more than 5% of shares. The results are presented in column one of Table 9. We find that insider ownership enhances the value of firm significantly.

Since the diversification discounts found earlier could be related to insider ownership as well, we also include two interaction terms between the insider ownership dummy variable and our two measures of the two types of corporate diversification. This setup follows Lins and Servaes (1999). The results of the regression that includes both interaction terms are presented in column two of Table 9. We find that, when insiders

control at least five percent of the company, the effects of both forms of diversification on excess value increases, although not statistically significant.

Further investigation, however, suggests that the results in column 2 of Table 9 may suffer from a multicollinearity problem, because of the high correlation between the additional explanatory variables. The correlation between the insider ownership variable and the first interaction term ("industrial diversification times insider ownership") is 0.87 and the correlation between the insider ownership variable and the second interaction term ("geographic diversification times insider ownership") is 0.59, while the correlation between the two interaction terms is 0.55.

Therefore, we re-estimate the model twice with only one of the two interaction terms. The results are presented in columns three and four of Table 9. Indeed, we find that the results in column 2 are spurious. We now find that the effects of both product and geographic diversification on excess value increases significantly when insiders control at least five percent of the company.

We should note that our results in Table 9 may suffer from a selection bias because insider owned firms tend to be less diversified and may therefore be higher valued. From the correlation matrix in Table 6 presented earlier, we know that the correlation between the insider ownership dummy variable and our diversification dummy variables are negative and significantly different from zero.[4]

We also test whether the value impact of both forms of diversification depend on the extent of diversification. First, we estimate the statistical significance of the incremental contribution to excess form value of product diversification. Following Lang and Stulz (1994) we do this by using dummy variables D(j) that take value one if the firm has j product segments or more. We then regress q on a constant, certain control variables, and D(j), with j = 2,3,4,5. In this regression, the coefficient on D(j) has the interpretation of a marginal contribution to q of the j-th product segment. Column one in Table 10 presents the results of this regression. We find that the marginal contribution to q of each product segment is negative and increasing in the number of segments (from –2.4% for two product segments to –18.4% for five product segments), but significantly

[4] The correlations with the insider ownership dummy variable are –0.05 and –0.12, respectively, for our product and geographic diversification dummy variables.

different from zero only for four and or more product segment dummy variables. This suggests that product diversification destroys firm value, especially at high levels of product diversity.

Second, we test whether the value impact of geographic diversification depends on the extent of geographic diversification. The conflicting results in Tables 7 and 8 suggest that this may the case. To test this, we add to the model in (1) a dummy variable that indicates whether the firm is a multinational or not. Earlier, we have defined multinationals as firms that have foreign sales exceeding 10% of total sales. We find that being a multinational has a positive impact on firm value, but that high levels of geographic diversification reduce firm value. This suggest that geographic diversification is value enhancing at low levels of multinational diversity, but has a negative impact on firm value at high levels of multinational diversity. According to the regression coefficients, geographic diversification enhances value at levels of foreign sales that do not exceed 48% of total sales. Apparently, geographic diversification that exceed this critical level suffers from agency and influence costs arising from the organizational complexity of a highly-diversified multinational conglomerate.

5. Investment Results

Berger and Ofek (1995) were the first to pin the underperformance of conglomerates on poor investment decisions. They showed that conglomerates that invest more in divisions with poor investment opportunities tend to trade at bigger discounts to their break-up value. They also found that conglomerates with larger discounts relative to their stand- alone values were more likely to be busted up and to increase their focus. Scharfstein (1997) looks at the investment behavior of 165 US conglomerates operating in unrelated business. Divisions in industries with relatively poor investment opportunities tended to invest more than their stand-alone industry peers, while divisions in industries with relatively good investment opportunities tended to invest less than their industry peers. Capital misallocation is more pronounced in conglomerates where management has small ownership stakes; in contrast, where headquarters has strong financial incentives, conglomerate divisions behave more like stand-alone firms. Thus,

capital misallocation appears to be tied to agency problems at the headquarters level. Finally, Rajan, Servaes and Zingales (1998) show that capital misallocation of this type seems to be more pronounced in firms with very different investment opportunities across divisions.

In this section we will investigate the allocative efficiency of capital and how investment levels differ across firms with different levels of diversity. To this end, we estimate the following regression model:

$$\begin{aligned}\text{Excess investment} = {} & a + b_1\,(\text{Industrial diversification measure}) \\ & + b_2\,(\text{Geographic diversification measure}) \\ & + b_3\,(\text{Log assets}) + b_4\,(\text{Excess value}) \\ & + b_5\,(\text{Insider ownership}) + \text{e}.\end{aligned} \qquad (2)$$

Excess investment has been defined previously as the natural logarithm of the ratio of a firm's actual capital expenditures-to-assets ratio to its imputed capital expenditures-to-assets ratio. We use investment and firm value variables in excess of their respective imputed values to control for industry effects. We control for differences across countries by adding country dummies. If capital is allocated efficiently, then there should be a one-to-one relationship between changes in excess value and changes in excess investment; in other words, the coefficient b_4 should equal one.

The regression results of estimating model (2) are presented in Table 11. We have estimated model (2) both with and without the insider ownership variable, and also focusing on one type of diversification only. In general, we find that firm investment responds positively to changes in excess firm value, although not as strongly as efficient allocation would suggest. Furthermore, we find that firms that are more diversified, both in terms of product and geographic diversity, tend to invest more. Insider ownership, on the other hand, is not found to affect the level of investment across firms. These findings are consistent with the valuation effects found in section 4. Highly diversified firms are found to make inefficient capital investments and are (consequently) valued less by investors. Although insider ownership does not improve the allocation of capital, it does improve firm value, because insider owned firms tend to less diversified, suggesting that

insiders with firm ownership tend to prevent the firm from reaching levels of diversity that are value destroying.

In model (2) we do not include a cash flow variable for two reasons. Cash flow measures are often added to investment models to measure financing constraints (see, for example, Fazzari, Hubbard, and Petersen (1988)). First, a cash flow measure is likely to be correlated with Tobin's q, resulting in measurement error (see Kaplan and Zingales, 1997) for problems with adding cash flow variables to measure financing constraints). Second, our sample includes large firms with access to global capital markets that are unlikely to be financially constrained. Any relationship found would most likely be a result of measurement error. For robustness, however, we have estimated model (2) with cash flow-to-sales as a measure of internal cash flow as well. The coefficient of this variable is not significant and the results are not affected. These results are not presented here.

Finally, we consider whether any of the impacts of diversification on investment levels from Table 11 differ conditionally on the form of diversification. In particular, we are interested in whether geographic diversification has a differential impact depending on whether the firm is industrially diversified or not and whether industrial diversification has a differential impact depending on whether the firm is geographically diversified or not. We have applied a similar type of test on excess values in section 4.

Table 12 presents the results of estimating the impact of diversification on investment conditional upon the type of firm. As in section 4, we distinguish between single-activity firms versus multi-activity firms, and between domestic and multinational firms. The first two columns of Table 12 contain the results for the tests of the impact of geographic diversification on investment conditional on industrial diversification. When comparing the results of regressions one and two we find that the regression coefficients of the geographic diversification measures are significantly different between the two regressions. While geographic diversification is found to tend to go together with high levels of firm investment value for multi-activity firms, its effect on investment for single-activity firms is found to be not significantly different from zero. This suggests that the impact of geographic diversification on investment is dependent on the extent of industrial diversification. We also find that the industrial diversification intensity estimate

for the multi-activity firms only regression is not significantly different from zero, suggesting that conditional on being multi-activity, industrial diversification has no impact on the level of firm investment.

Columns three and four of Table 12 contain the results for the tests of the impact of industrial diversification on firm investment conditional on geographic diversification. In the regression in column three, the regression coefficient of the industrial diversification measure is not significantly different from zero. The estimate is different from the regression coefficient of the industrial diversification measure in column four, which is positive and significantly different from zero. This suggests that the impact of geographic diversification on firm investment is dependent on the extent of geographic diversification. We also find that the geographic diversification impact estimate for the multinational firms only regression in column four is not significantly different from zero, suggesting that conditional on being a multinational, the extent of geographic diversification does not affect the level of firm investment. In sum, the results in Table 12 indicate that highly diversified firms invest more than firms that specialize either in one activity or in one market.

6. Conclusions

We find that geographic diversification is value enhancing only up to a certain level but that in general both product and geographic diversification are value destroying. These findings are consistent with the following theories. A low degree of geographic diversification raises firm value because it provides access to relatively low-cost inputs from abroad and because it allows the firm more possibilities for tax avoidance. Beyond a certain level, however, geographic diversification leads to too complex organizations and becomes value destroying. Product diversification as well leads to more complex organizations and to more internal incentive problems and is value destroying in general. We also find that insider-owned firms tend to be less diversified and that insider ownership of firms enhances firm value, suggesting that insiders with firm ownership tend to prevent the firm from reaching levels of diversity that are value destroying. This finding may also suggest that the incentive problems in diversified firms are smaller with

self-interested owner-managers. Owner-managers may strongly influence the decision-making process internally which could reduce the incentive problems in the organization of the corporation. Consistent with the low valuation of highly diversified firms, we also find that highly diversified firms make inefficient capital investments.

Many of our findings are consistent with previous results found in the literature. The product diversification discount found is consistent with the results in Lang and Stulz (1994) and Berger and Ofek (1995) and of similar order of magnitude. The non-linear relationship between geographic diversity and corporate value is consistent with the conflicting findings by Errunza and Senbet (1981, 1984), Morck and Yeung (1991), Bodnar et al. (1997) and Click and Harrison (2000). The cost of diversification beyond the primary 2-digit SIC code product segment is also consistent with the findings in Claessens et al. (1999b) that vertical diversification is found to destroy value and complementary diversification is found to enhance value, since vertical diversification tends to be outside the primary product segment and complementary diversification tends to be within the primary product segment. Furthermore, the cost of diversity can be explained by the models in Meyer, Milgrom, and Roberts (1992), Scharfstein and Stein (2000), or Rajan, Servaes, and Zingales (2000). Our finding that insider ownership is related to less corporate diversification and may therefore enhance value differs somewhat from previous results found in the literature. For instance, although Lins and Servaes (1999) also find that concentrated ownership in the hands of insiders enhances the valuation effect of diversification in the case of Germany, they do not find any significant relationship between the value of diversification and insider ownership in the US and the UK, consistent with the work by Denis et al., (1997) and Anderson et al. (2000). Our findings suggest that the impact of the structure of corporate ownership on the value of corporate diversification is country-specific and suggests that concentrated ownership in the hands of insiders may be valuable in countries with poor corporate governance.

Our findings suggest that many diversified firms around the world have reached levels of diversity that are value-destroying. These firms should focus and limit the scope of their activities to a smaller number of product and geographic segments. For example, conglomerate mergers should tend to be complementary rather than vertical and many

multinationals may consider focusing on a number of core markets and divest activities in markets where the firm does not have comparative advantage.

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Table I
Sample Selection Procedure

Data are gathered from the Worldscope database. Excluded from the sample are: firms not listed on a stock exchange, firms in the financial services industry, firms without financial data for the year 1999, firms with reporting date in the first half of the year, firms that do not report foreign sales, firms that report foreign sales that exceed total sales, and firms in countries with less than 20 remaining firms.

	Number of firms
Number of firms on Worldscope	15,285
Substract: Unlisted firms	(2,176)
Substract: Firms in the financial services industry (PSIC between 6000 and 6999)	(2,433)
Substract: Firms without financial data for 1999	(3,470)
Substract: Firms that report financials during first half of the year	(3,218)
Substract: Firms with assets or sales less than US$20mln	(900)
Substract: Firms for which data on foreign sales is missing	(947)
Substract: Firms with foreign sales to total sales larger than 100%	(5)
Firms remaining for all countries	2,136
Substract: Countries with less than 20 firm observations	(222)
Final sample	1,914

Table II
Sample Distribution Across Countries

Country	Number of firms	Percentage
Australia	118	6.2
Canada	211	11.0
Denmark	46	2.4
Finland	47	2.5
France	156	8.2
Germany	105	5.5
Hong Kong	57	3.0
Japan	60	3.1
Malaysia	89	4.7
Netherlands	62	3.2
Norway	20	1.0
Singapore	44	2.3
South Africa	30	1.6
Sweden	69	3.6
Switzerland	36	1.9
Thailand	50	2.6
United Kingdom	384	20.1
United States	330	17.2
Total	1,914	100.0

Table III
Sample Distribution and Descriptive Statistics

Industrially-diversified multinational firms are firms that operate in two or more two-digit SIC code industries and have foreign sales of more than 10% of total sales. Industrially-diversified domestic firms are firms that operate in two or more two-digit SIC code industries and have foreign sales of less than 10% of total sales. Single-segment multinational firms are firms that operate in only one two-digit SIC code industry but do have foreign sales of more than 10% of total sales. Single-segment domestic firms are firms that operate in only one two-digit SIC code industry and have foreign sales of less than 10% of total sales. Descriptive statistics are medians. Leverage ratio is defined as book value of debt divided by total assets. Insider firms are firms with more than 5% of shares held by insiders. We classify an ownership position as insider ownership whenever the ownership position overlaps with the list of officers and directors provided by Worldscope. The excess value measure is the natural logarithm ratio of Tobin's q to the imputed Tobin's q value of the primary industrial segment of the firm on a 2-digit SIC level. The imputed Tobin's q value of the primary industrial segment is the Tobin's q of the median domestic single activity firm (domestic firm being defined as a firm with foreign sales less than 10% of total sales) in that particular 2-digit SIC level industry with more than $20 million in assets and sales. By definition the median measure of excess value and the excess capex/assets for the domestic single activity firms will be zero.

	Industrially-diversified multinational	Industrially-diversified domestic	Single-segment multinational	Single-segment domestic
Number of firms (% of total firms)	958 (50%)	461 (24%)	271 (14%)	224 (12%)
Number of insider firms (% of number of firms in category)	125 (13%)	101 (22%)	43 (16%)	59 (26%)
Number of segments (2-digit SIC codes)	3	3	1	1
Foreign sales/Total sales	0.477	0	0.511	0
Total assets ($mln)	1095	292	815	254
Total market cap ($mln)	811	193	830	278
Tobin's Q	1.37	1.16	1.65	1.33
Excess value	0.04	-0.04	0.10	0
P/E ratio	15.6	11.9	17.1	13.0
Leverage ratio	0.239	0.217	0.244	0.266
Cash flow/sales	0.096	0.094	0.110	0.119
Capital expenditures/sales	0.051	0.051	0.052	0.069
Excess capex/assets	0.283	0.172	0.070	0

Table IV
Correlation Matrix of Excess Value versus Diversification Measures

The excess value measure is the natural logarithm ratio of Tobin's q to the imputed Tobin's q value of the primary industrial segment of the firm on a 2-digit SIC level. The measure of product diversification is the number of product segments in which a firm operates where a product segment is defined as a two-digit SCI code industry. The measure of geographic diversification is the ratio of foreign sales to total sales. p-value of test of significant difference from zero between brackets

Nobs=1,769	Excess value	Product diversification	Geographic diversification
Excess value	1.0000		
Product diversification	-0.0642*** (0.0069)	1.0000	
Geographic diversification	-0.0377 (0.1126)	0.0813*** (0.0015)	1.0000

Table V
Correlation Matrix of Excess Value versus Diversification Dummies

The excess value measure is the natural logarithm ratio of Tobin's q to the imputed Tobin's q value of the primary industrial segment of the firm on a 2-digit SIC level. The product diversification dummy takes value one if the firm operates in two or more two-digit SIC code industries, and zero otherwise. The geographic diversification dummy takes value one if the ratio of foreign sales to total sales equals or exceeds 10 percent, and zero otherwise. p-value of test of significant difference from zero between brackets.

Nobs=1,769	Excess value	Product diversification dummy	Geographic diversification dummy
Excess value	1.0000		
Product diversification dummy	-0.0439* (0.0649)	1.0000	
Geographic diversification dummy	0.0289 (0.2238)	0.1166*** (0.0000)	1.0000

Table VI
Correlation Matrix of Insider Ownership versus Diversification Dummies

Insider ownership dummy is a dummy variable that takes value one if more than 5% of the firm's shares are held by insiders, and zero otherwise. The product diversification dummy takes value one if the firm operates in two or more two-digit SIC code industries, and zero otherwise. The geographic diversification dummy takes value one if the ratio of foreign sales to total sales equals or exceeds 10 percent, and zero otherwise. p-value of test of significant difference from zero between brackets.

Nobs=1,914	Insider ownership dummy	Product diversification dummy	Geographic diversification dummy
Insider ownership dummy	1.0000		
Product diversification dummy	-0.0544** (0.0174)	1.0000	
Geographic diversification dummy	-0.1232*** (0.0000)	0.1166*** (0.0000)	1.0000

Table VII
Regression Models of Excess Value on Measures of Industrial and Geographical Diversification, and Control Variables for 1999

The following regression model is estimated for the sample of all countries:

Excess value = a + b_1 (industrial diversification measure) + b_2 (geographical diversification measure) + b_3 (ln assets) + b_4 (cash flow-to-sales) + b_5 (capital expenditures-to-sales) + e.

Excess value is defined as the natural logarithm of the ratio of a firm's actual market-to assets ratio to its imputed market-to-assets ratio. The imputed market-to-assets ratio is the market-to-assets value of the median single activity firm with no foreign sales that operates in the same primary industrial segment as measured on a 2-digit SIC level and has more than $20 million in assets and sales. The industrial diversification measure equals the number of product segments in which a firm operates where a product segment is defined as a two-digit SIC code industry. The geographical diversification measure equals the foreign sales-to-sales ratio of the firm. We include country dummies but these are not reported. The p-value of the t-test of equality of the coefficient to zero is reported in parentheses. We use heteroskedasticity-corrected standard errors.

Variable	(1)	(2)	(3)
Intercept	-0.675	-0.722	-0.722
	(0.00)	(0.00)	(0.00)
Industrial diversification	-0.036	—	-0.036
	(0.01)		(0.01)
Geographical diversification	—	-0.119	-0.118
		(0.04)	(0.04)
Log of total assets	0.047	0.048	0.053
	(0.00)	(0.00)	(0.00)
Cash flow-to-sales	0.113	0.118	0.109
	(0.36)	(0.34)	(0.37)
Capital expenditures-to-sales	0.034	0.035	0.021
	(0.53)	(0.51)	(0.69)
Adjusted R2	0.06	0.05	0.06
Number of observations	1704	1704	1704

Table VIII
Regression Models of Conditional Value Impacts of Diversification for 1999

The following regression model is estimated for a subset of the firms:

Excess value = $a + b_1$ (industrial diversification measure) + b_2 (geographical diversification measure) + b_3 (ln assets) + b_4 (cash flow-to-sales) + b_5 (capital expenditures-to-sales) + e.

Excess value is defined as the natural logarithm of the ratio of a firm's actual market-to assets ratio to its imputed market-to-assets ratio. The imputed market-to-assets ratio is the market-to-assets value of the median single activity firm with no foreign sales that operates in the same primary industrial segment as measured on a 2-digit SIC level and has more than $20 million in assets and sales. The industrial diversification measure equals the number of product segments in which a firm operates where a product segment is defined as a two-digit SIC code industry. The geographical diversification measure equals the foreign sales-to-sales ratio of the firm. We include country dummies but these are not reported. The p-value of the t-test of equality of the coefficient to zero is reported in parentheses. We use heteroskedasticity-corrected standard errors.

	Conditional tests of the Value impact of:			
	Geographical diversification		Industrial diversification	
Variable	Single-Activity firms only	Multi-activity firms only	Domestic firms only	Multinational firms only
Intercept	-0.418	-0.784	-0.364	-0.799
	(0.00)	(0.00)	(0.09)	(0.00)
Industrial diversification	—	-0.039	-0.041	-0.043
		(0.05)	(0.04)	(0.02)
Geographical diversification	-0.018	-0.156	—	-0.259
	(0.87)	(0.02)		(0.04)
Log of total assets	0.025	0.058	0.023	0.065
	(0.25)	(0.00)	(0.15)	(0.00)
Cash flow-to-sales	-0.050	0.196	0.065	0.125
	(0.75)	(0.33)	(0.67)	(0.45)
Capital expenditures-to-sales	0.006	0.071	0.094	0.040
	(0.95)	(0.30)	(0.25)	(0.54)
Adjusted R2	0.06	0.06	0.03	0.08
Number of observations	463	1240	592	1111

Table IX
Regression Models of Excess Value on Measures of Industrial and Geographical Diversification, Insider Ownership and Control Variables for 1999

The following regression model is estimated for the sample of all countries:

Excess value = $a + b_1$ (industrial diversification measure) + b_2 (geographical diversification measure) + b_3 (ln assets) + b_4 (cash flow-to-sales) + b_5 (capital expenditures-to-sales) + b_6 (insider ownership) + e.

Excess value is defined as the natural logarithm of the ratio of a firm's actual market-to assets ratio to its imputed market-to-assets ratio. The imputed market-to-assets ratio is the market-to-assets value of the median single activity firm with no foreign sales that operates in the same primary industrial segment as measured on a 2-digit SIC level and has more than $20 million in assets and sales. The industrial diversification measure equals the number of product segments in which a firm operates where a product segment is defined as a two-digit SIC code industry. The geographical diversification measure equals the foreign sales-to-sales ratio of the firm. We add a dummy variable called insider ownership that takes value one if 5% or more of total shares are held by insiders. The interaction terms in columns (2)-(4) are constructed in terms of the multiples of the diversification measures times the insider ownership dummy variable. We classify an ownership position as insider ownership whenever the ownership position overlaps with the list of officers and directors provided by Worldscope. We include country dummies but these are not reported. The p-value of the t-test of equality of the coefficient to zero is reported in parentheses. We use heteroskedasticity-corrected standard errors.

Variable	(1)	(2)	(3)	(4)
Intercept	-0.819	-0.813	-0.787	-0.770
	(0.00)	(0.00)	(0.00)	(0.00)
Industrial diversification	-0.034	-0.037	-0.041	-0.035
	(0.01)	(0.01)	(0.00)	(0.01)
Geographical diversification	-0.112	-0.124	-0.112	-0.152
	(0.05)	(0.05)	(0.05)	(0.01)
Log of total assets	0.059	0.060	0.058	0.057
	(0.00)	(0.00)	(0.00)	(0.00)
Cash flow-to-sales	0.114	0.111	0.111	0.105
	(0.35)	(0.36)	(0.35)	(0.37)
Capital expenditures-to-sales	0.021	0.021	0.023	0.020
	(0.68)	(0.68)	(0.67)	(0.70)
Insider ownership	0.120	0.055	—	—
	(0.01)	(0.55)		
Industrially diversified * insider ownership	—	0.020	0.047	—
		(0.56)	(0.00)	
Geographically diversified * insider ownership	—	0.072	—	0.225
		(0.62)		(0.06)
Adjusted R2	0.06	0.06	0.06	0.06
Number of observations	1704	1704	1704	1704

Table X
Regression Models of Excess Value on Measures of Industrial and Geographical Diversification and Control Variables for 1999

The following regression models are estimated for the sample of all countries:

Excess value = $a + b_1$ (number of product segments dummies) + b_2 (geographical diversification measure) + b_3 (ln assets) + b_4 (cash flow-to-sales) + b_5 (capital expenditures-to-sales) + e.

Excess value = $a + b_1$ (industrial diversification measure) + b_2 (geographical diversification measure) + b_3 (multinational dummy) + b_4 (ln assets) + b_5 (cash flow-to-sales) + b_5 (capital expenditures-to-sales) + e.

Excess value is defined as the natural logarithm of the ratio of a firm's actual market-to assets ratio to its imputed market-to-assets ratio. The product segment dummies take value one if the number of product segments in which a firm operates equals a certain number where a product segment is defined as a two-digit SIC code industry. The industrial diversification measure in column two equals the number of product segments in which a firm operates where a product segment is defined as a two-digit SIC code industry. The geographical diversification measure equals the foreign sales-to-sales ratio of the firm. The multinational dummy takes value one if foreign sales exceed 10% of total sales. We include country dummies but these are not reported. The p-value of the t-test of equality of the coefficient to zero is reported in parentheses. We use heteroskedasticity-corrected standard errors.

Variable	(1)	(2)
Intercept	-0.763	-0.751
	(0.00)	(0.00)
Industrial diversification	—	-0.040
		(0.00)
Two product segments dummy	-0.024	—
	(0.57)	
Three product segments dummy	-0.067	—
	(0.13)	
Four product segments dummy	-0.081	—
	(0.09)	
Five or more product segments dummy	-0.184	—
	(0.02)	
Geographical diversification	-0.117	-0.255
	(0.04)	(0.00)
Multinational dummy	—	0.123
		(0.02)
Log of total assets	0.052	0.053
	(0.00)	(0.00)
Cash flow-to-sales	0.111	0.114
	(0.36)	(0.34)
Capital expenditures-to-sales	0.021	0.039
	(0.69)	(0.46)
Adjusted R2	0.06	0.06
Number of observations	1704	1704

Table XI
Regression Models of Excess Investment on Measures of Industrial and Geographical Diversification, and Control Variables for 1999

The following regression model is estimated for the sample of all countries:

Excess investment = $a + b_1$ (industrial diversification measure) + b_2 (geographical diversification measure) + b_3 (ln assets) + b_4 (excess value) + e.

Excess investment is defined as the natural logarithm of the ratio of a firm's actual investment-to assets ratio to its imputed investment-to-assets ratio. The imputed investment-to-assets ratio is the investment-to-assets value of the median single activity firm with no foreign sales that operates in the same primary industrial segment as measured on a 2-digit SIC level and has more than $20 million in assets and sales. Investments are measured as capital expenditures. The industrial diversification measure equals the number of product segments in which a firm operates where a product segment is defined as a two-digit SIC code industry. The geographical diversification measure equals the foreign sales-to-sales ratio of the firm. Excess value is defined as the natural logarithm of the ratio of a firm's actual market-to assets ratio to its imputed market-to-assets ratio. The imputed market-to-assets ratio is the market-to-assets value of the median single activity firm with no foreign sales that operates in the same primary industrial segment as measured on a 2-digit SIC level and has more than $20 million in assets and sales. We include country dummies but these are not reported. The p-value of the t-test of equality of the coefficient to zero is reported in parentheses. We use heteroskedasticity-corrected standard errors.

Variable	(1)	(2)	(3)	(4)
Intercept	-0.313	-0.176	-0.220	-0.220
	(0.25)	(0.52)	(0.42)	(0.42)
Industrial diversification	0.064	—	0.063	0.063
	(0.03)		(0.03)	(0.03)
Geographical diversification	—	0.228	0.225	0.225
		(0.03)	(0.04)	(0.04)
Log of total assets (t-1)	0.009	0.006	-0.002	-0.002
	(0.63)	(0.76)	(0.93)	(0.93)
Excess value (t-1)	0.227	0.225	0.232	0.232
	(0.00)	(0.00)	(0.00)	(0.00)
Insider ownership	—	—	—	-0.002
				(0.983)
Adjusted R2	0.08	0.08	0.08	0.08
Number of observations	1704	1704	1704	1704

Table XII
Regression Models of Conditional Investments Impacts of Diversification for 1999

The following regression model is estimated for a subset of the firms:

Excess investment = $a + b_1$ (industrial diversification measure) + b_2 (geographical diversification measure) + b_3 (ln assets) + b_4 (excess value) + e.

Excess investment is defined as the natural logarithm of the ratio of a firm's actual investment-to assets ratio to its imputed investment-to-assets ratio. The imputed investment-to-assets ratio is the investment-to-assets value of the median single activity firm with no foreign sales that operates in the same primary industrial segment as measured on a 2-digit SIC level and has more than $20 million in assets and sales. Investments are measured as capital expenditures. The industrial diversification measure equals the number of product segments in which a firm operates where a product segment is defined as a two-digit SIC code industry. The geographical diversification measure equals the foreign sales-to-sales ratio of the firm. Excess value is defined as the natural logarithm of the ratio of a firm's actual market-to assets ratio to its imputed market-to-assets ratio. The imputed market-to-assets ratio is the market-to-assets value of the median single activity firm with no foreign sales that operates in the same primary industrial segment as measured on a 2-digit SIC level and has more than $20 million in assets and sales. We include country dummies but these are not reported. The p-value of the t-test of equality of the coefficient to zero is reported in parentheses. We use heteroskedasticity-corrected standard errors.

	Conditional tests of the Investment impact of:			
	Geographical diversification		Industrial diversification	
Variable	Single-Activity firms only	Multi-activity firms only	Domestic firms only	Multinational firms only
Intercept	-0.102	-0.211	0.032	-0.220
	(0.82)	(0.53)	(0.96)	(0.42)
Industrial diversification	—	0.036	0.070	0.053
		(0.40)	(0.27)	(0.09)
Geographical diversification	0.180	0.234	—	0.064
	(0.35)	(0.07)		(0.70)
Log of total assets (t-1)	0.012	-0.003	-0.031	0.012
	(0.72)	(0.89)	(0.50)	(0.62)
Excess value (t-1)	0.135	0.260	0.380	0.184
	(0.09)	(0.00)	(0.00)	(0.00)
Adjusted R2	0.05	0.09	0.07	0.07
Number of observations	463	1241	592	1112

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